

M.2.7 RADIOLOGICAL IMPACTS AT PANTEX PLANT

This section presents the radiological impacts of the various storage and disposition alternatives at Pantex. Section M.2.7.1 presents the radiological releases and resulting impacts from facilities associated with No Action. Section M.2.7.2 presents the radiological releases and resulting impacts from the various alternatives.

For purposes of radiological impact modeling, Pantex was divided into six areas which would release radioactivity in 2005. All release points in each area were aggregated into a single release point. Table M.2.7-1 presents the characteristics of each of the release points including location, release height, and minimum distance and annual average dispersion to the site boundary in each of 16 directions. In order to calculate the maximum site boundary dose (that is, the dose ultimately incurred to the site MEI), the dose from each release point to the "maximum receptor" (that is, potential MEI) associated with each of the other release points has been calculated. For further clarification on the definition of "maximum receptor," refer to Section M.2.2.2. For example, the dose resulting from releases from Building 12-44 Cell 1 and the other storage and disposition alternatives, has been determined from the maximum receptor from the Burning Ground. Figure M.2.7-1 illustrates the location of each maximum receptor in relation to each release point. The maximum site boundary dose (that is, the dose ultimately incurred to the site MEI) is then determined by the maximum dose to one of these maximum receptors. Table M.2.7-2 presents the distance, direction, and atmospheric dispersion from each release point to each of the maximum receptors. Annual radiological releases were assumed to remain constant during the full operational period.

Descriptions of population and food stuff distributions centered on each release area are provided in a Health Risk Data report, October 1996. The joint frequency distribution used for the dose assessment was based on the meteorological measurements for 1989 from the National Weather Service at the 10-m (33-ft) height and is contained in the Health Risk Data report.

Doses given in this section are associated with 1 year of operation because regulatory standards are given as annual limits. The health effects are presented on an annual basis in the tables and for the projected operational period in the text. Tables M.2.7-3 and M.2.7-4 include the radiological impacts to the public from atmospheric releases for the No Action and the storage and disposition alternatives.

Table M.2.7-1. Release Point Characteristics, Direction, Distance, and Chi/Q at the Panter Plant Boundary

Release Point ^a	Bldg. 12-44 Cell 1		HE Burning Ground		Zones 11 and 12		Strategic Reserve		Facility		Immobilization		LWR Site				
	Latitude	35° 18' 24.087"	Longitude	35° 20' 40.781"	Latitude	35° 18' 46.315"	Longitude	35° 18' 22.415"	Latitude	35° 19' 46.714"	Longitude	35° 20' 25.520"	Latitude	35° 19' 46.714"	Longitude	35° 20' 25.520"	
Release Height	-101° 33' 25.592"	Release Height	-101° 35' 4.249"	Release Height	-101° 33' 53.239"	Release Height	-101° 33' 36.363"	Release Height	-101° 34' 14.606"	Release Height	-101° 36' 14.568"	Release Height	Ground Level	Release Height	Ground Level	Release Height	Ground Level
Distance and Atmospheric Dispersion at Site Boundary																	
Direction	Distance	Chi/Q (s/m ³)	Distance (m)	Chi/Q (s/m ³)	Distance (m)	Chi/Q (s/m ³)											
N	5,176	1.6x10 ⁻⁷	931	1.7x10 ⁻⁶	4,482	2.1x10 ⁻⁷	5,224	1.7x10 ⁻⁷	2,614	4.8x10 ⁻⁷	1,380	1.4x10 ⁻⁶					
NNE	2,790	2.4x10 ⁻⁷	950	1.0x10 ⁻⁶	4,095	1.5x10 ⁻⁷	3,315	2.1x10 ⁻⁷	2,660	2.9x10 ⁻⁷	1,406	8.1x10 ⁻⁷					
NE	1,831	3.6x10 ⁻⁷	1,127	7.0x10 ⁻⁷	2,691	2.3x10 ⁻⁷	2,168	3.3x10 ⁻⁷	3,141	1.8x10 ⁻⁷	1,659	5.0x10 ⁻⁷					
ENE	1,534	2.8x10 ⁻⁷	1,665	2.5x10 ⁻⁷	2,247	1.9x10 ⁻⁷	1,811	2.7x10 ⁻⁷	2,783	1.3x10 ⁻⁷	2,444	1.6x10 ⁻⁷					
E	1,490	3.2x10 ⁻⁷	3,963	8.1x10 ⁻⁸	2,185	2.2x10 ⁻⁷	1,762	3.1x10 ⁻⁷	2,716	1.6x10 ⁻⁷	5,741	5.2x10 ⁻⁸					
ESE	1,516	2.1x10 ⁻⁷	4,028	5.4x10 ⁻⁸	2,225	1.5x10 ⁻⁷	1,792	2.1x10 ⁻⁷	2,761	1.0x10 ⁻⁷	5,837	3.5x10 ⁻⁸					
SE	1,781	2.1x10 ⁻⁷	4,719	5.6x10 ⁻⁸	2,604	1.5x10 ⁻⁷	2,091	2.1x10 ⁻⁷	3,224	1.1x10 ⁻⁷	6,827	3.6x10 ⁻⁸					
SSE	2,577	9.5x10 ⁻⁸	6,942	2.4x10 ⁻⁸	3,465	7.1x10 ⁻⁸	2,625	1.1x10 ⁻⁷	4,776	4.4x10 ⁻⁸	7,587	2.3x10 ⁻⁸					
S	2,607	1.8x10 ⁻⁷	7,473	4.2x10 ⁻⁸	3,505	1.3x10 ⁻⁷	2,651	2.1x10 ⁻⁷	5,454	6.9x10 ⁻⁸	7,270	4.6x10 ⁻⁸					
SSW	3,001	9.1x10 ⁻⁸	5,659	3.7x10 ⁻⁸	4,037	6.6x10 ⁻⁸	3,055	1.0x10 ⁻⁷	6,285	3.4x10 ⁻⁸	2,333	1.5x10 ⁻⁷					
SW	4,290	4.8x10 ⁻⁸	3,696	5.9x10 ⁻⁸	5,768	3.5x10 ⁻⁸	4,379	5.1x10 ⁻⁸	5,225	4.0x10 ⁻⁸	1,513	2.7x10 ⁻⁷					
WSW	5,643	4.8x10 ⁻⁸	3,083	1.1x10 ⁻⁷	4,925	6.4x10 ⁻⁸	5,366	5.6x10 ⁻⁸	4,368	7.6x10 ⁻⁸	1,257	5.3x10 ⁻⁷					
W	5,495	5.0x10 ⁻⁸	2,999	1.1x10 ⁻⁷	4,795	6.5x10 ⁻⁸	5,223	5.8x10 ⁻⁸	4,254	7.8x10 ⁻⁸	1,223	5.5x10 ⁻⁷					
WNW	5,577	3.8x10 ⁻⁸	1,730	1.9x10 ⁻⁷	4,873	5.0x10 ⁻⁸	5,301	4.4x10 ⁻⁸	4,320	6.0x10 ⁻⁸	1,249	4.2x10 ⁻⁷					
NW	6,304	5.1x10 ⁻⁸	1,142	5.3x10 ⁻⁷	5,454	6.7x10 ⁻⁸	6,177	5.6x10 ⁻⁸	3,199	1.5x10 ⁻⁷	1,462	5.1x10 ⁻⁷					
NNW	5,293	6.6x10 ⁻⁸	955	6.9x10 ⁻⁷	4,585	8.7x10 ⁻⁸	5,346	7.0x10 ⁻⁸	2,681	1.9x10 ⁻⁷	1,417	5.4x10 ⁻⁷					

^a See Figure M.2.7-1 for location of release points.

Source: HNUS 1996a.

Table M.2.7-2. Direction, Distance, and Meteorological Dispersion to Various Maximum Individual Receptors at the Pantex Plant Boundary

Maximum Receptor For	Direction	Distance (m)	Atmospheric Dispersion Chi/Q (s/m^3)
Release Point: Bldg. 12-44 Cell 1			
Bldg. 12-44 Cell 1	NE	1,831	3.6×10^{-7}
HE Burning Ground	NNW	5,728	5.9×10^{-8}
Between Zone 11 and 12	NE	2,707	2.0×10^{-7}
Strategic Reserve	NE	1,922	3.3×10^{-7}
Immobilization Facility	NNW	5,315	6.5×10^{-8}
LWR Site	NW	6,695	4.7×10^{-8}
Release Point: HE Burning Ground			
Bldg. 12-44 Cell 1	SE	5,069	5.0×10^{-8}
HE Burning Ground	N	932	1.7×10^{-6}
Between Zone 11 and 12	ESE	4,424	4.7×10^{-8}
Strategic Reserve	SE	4,977	5.2×10^{-8}
Immobilization Facility	NE	1,544	4.5×10^{-7}
LWR Site	WNW	2,032	1.5×10^{-7}
Release Point: Between Zone 11 and 12			
Bldg. 12-44 Cell 1	E	2,218	2.2×10^{-7}
HE Burning Ground	NNW	4,817	8.1×10^{-8}
Between Zone 11 and 12	NE	2,692	2.3×10^{-7}
Strategic Reserve	ENE	2,248	1.9×10^{-7}
Immobilization Facility	N	4,512	2.1×10^{-7}
LWR Site	NW	5,722	6.3×10^{-8}
Release Point: Strategic Reserve			
Bldg. 12-44 Cell 1	ENE	2,085	2.1×10^{-7}
HE Burning Ground	NNW	5,661	6.4×10^{-8}
Between Zone 11 and 12	NE	2,905	2.1×10^{-7}
Strategic Reserve	NE	2,169	3.3×10^{-7}
Immobilization Facility	N	5,307	1.7×10^{-7}
LWR Site	NW	6,564	5.2×10^{-8}
Release Point: Immobilization Facility			
Bldg. 12-44 Cell 1	ESE	3,098	8.7×10^{-8}
HE Burning Ground	NNW	2,896	1.7×10^{-7}
Between Zone 11 and 12	E	2,733	1.6×10^{-7}
Strategic Reserve	ESE	3,029	9.0×10^{-8}
Immobilization Facility	N	2,614	4.8×10^{-7}
LWR Site	NW	4,009	1.0×10^{-7}
Release Point: LWR Site			
Bldg. 12-44 Cell 1	ESE	6,344	3.1×10^{-8}
HE Burning Ground	NE	2,243	3.1×10^{-7}
Between Zone 11 and 12	ESE	5,935	3.4×10^{-8}
Strategic Reserve	ESE	6,282	3.1×10^{-8}
Immobilization Facility	ENE	3,314	1.0×10^{-7}
LWR Site	N	1,380	1.4×10^{-6}

Source: HNUS 1996a.

Table M.2.7-3. Doses and Resulting Health Effects to the Maximally Exposed Individual at Pantex Plant From Atmospheric Releases Associated With Annual Normal Operation

Alternative/Facility	Dose by Pathway (mrem)					Committed Effective Dose Equivalent (mrem)	Percent of Background ^a	Estimated 1-Year Fatal Cancer Risk
	Inhalation	Ingestion	Plume Immersion	Ground Shine	Background ^a			
No Action (Total Site) ^b	4.3×10^{-6}	5.7×10^{-5}	4.0×10^{-5}	0.0	6.1×10^{-5}	1.8×10^{-5}	3.1×10^{-11}	
Upgraded Storage Facility ^b	c	c	c	c	1.8×10^{-8}	5.4×10^{-9}	9.0×10^{-15}	
Upgraded Consolidated Storage Facility	9.5×10^{-6}	1.7×10^{-8}	3.6×10^{-5}	7.6×10^{-12}	9.5×10^{-6}	2.8×10^{-6}	4.7×10^{-12}	
Consolidated Storage Facility	9.5×10^{-6}	1.6×10^{-8}	3.6×10^{-5}	7.6×10^{-12}	9.5×10^{-6}	2.8×10^{-6}	4.7×10^{-12}	
Collocated Storage Facility	9.6×10^{-6}	1.7×10^{-8}	3.8×10^{-5}	1.2×10^{-11}	9.6×10^{-6}	2.9×10^{-6}	4.8×10^{-12}	
Pit Disassembly/Conversion Facility	1.1×10^{-3}	2.3×10^{-5}	6.3×10^{-12}	9.4×10^{-9}	1.1×10^{-3}	3.3×10^{-4}	5.5×10^{-10}	
Pu Conversion Facility	6.9×10^{-4}	1.3×10^{-6}	2.9×10^{-13}	6.1×10^{-10}	6.9×10^{-4}	2.1×10^{-4}	3.5×10^{-10}	
MOX Fuel Fabrication Facility	5.2×10^{-4}	8.9×10^{-7}	2.0×10^{-13}	9.4×10^{-10}	5.2×10^{-4}	1.6×10^{-4}	2.6×10^{-10}	
Ceramic Immobilization Facility (Immobilization Disposition)	2.5×10^{-7}	4.3×10^{-10}	9.6×10^{-17}	2.0×10^{-13}	2.5×10^{-7}	7.5×10^{-8}	1.2×10^{-13}	
Deep Borehole Complex (Direct Disposition)	4.1×10^{-8}	5.9×10^{-10}	1.5×10^{-16}	2.4×10^{-13}	4.1×10^{-8}	1.2×10^{-8}	2.1×10^{-14}	
Deep Borehole Complex (Immobilized Disposition)	5.0×10^{-8}	8.8×10^{-10}	2.3×10^{-16}	3.4×10^{-13}	5.1×10^{-8}	1.5×10^{-8}	2.6×10^{-14}	
Vitrification Facility Ceramic Immobilization Facility (Ceramic Immobilization)	9.8×10^{-5}	6.7×10^{-6}	1.9×10^{-9}	1.1×10^{-6}	1.1×10^{-4}	3.3×10^{-5}	5.5×10^{-11}	
Advanced Boiling Water Reactor CE System 80+ Reactor [Text deleted.]	1.7×10^{-2}	0.99	0.47	2.4×10^{-2}	1.5	0.45	7.5×10^{-7}	
AP600 Reactor RESAR-90 Reactor	3.2×10^{-2}	0.93	7.6×10^{-2}	1.4×10^{-2}	1.0	0.30	5.0×10^{-7}	
	5.0×10^{-2}	1.4	3.0×10^{-2}	1.2×10^{-2}	1.5	0.45	7.5×10^{-7}	

^a Individual annual natural background radiation dose is equal to 334 mrem.

^b For the three upgrade subalternatives including the Preferred Alternative, the dose to the MEI and the population within 80 km would decrease slightly from the No Action Alternative, although the differences are expected to be below detection limits. Therefore, the total site dose would decrease slightly but the change would be undetectable. The quantity of Pu pits at Pantex to be stored in upgraded facilities in Zone 12 would be slightly increased by the addition of RFETS pits (the Preferred Alternative) or by the addition of LANL Pu. The difference between these three subalternatives would be below detection limits. The AT-400A has both an inner container and an outer container that provides additional shielding material. The overall effect of moving Pantex and RFETS pits from Zone 4 to upgraded Zone 12 storage facilities would be lower potential releases of radioactive materials to the public, because the radiological impacts at Zone 4 would be reduced.

^c The committed effective dose equivalent for the storage facility is calculated to be 1.8×10^{-8} mrem based upon an analysis of measured dose. The dose shown here is for the Upgrade With RFETS Pu Pits Subalternative (Preferred Alternative). The dose for the Upgrade Without RFETS Pu or LANL Pu Subalternative would be slightly less and for the Upgrade With All or Some RFETS Pu and LANL Pu Subalternative would be slightly greater. The differences are not measurable above background.

Note: The dose shown here is for the Upgrade Without RFETS Pu or LANL Pu Subalternative (Preferred Alternative). The dose for the Upgrade With All or Some RFETS Pu and LANL Pu Subalternative would be slightly less and for the Upgrade With All or Some RFETS Pu and LANL Pu Subalternative would be slightly greater. The differences are not measurable above background.

Table M.2.7-4. Doses and Resulting Health Effects to the Population Within 80 Kilometers of Pantex Plant From Atmospheric Releases Associated With Normal Operation in 2030

Alternative/Facility	Dose by Pathway (person-rem)				Committed Effective Dose Equivalent (person-rem)		Estimated Percent of Background ^a 1-Year Fatal Cancers	
	Inhalation	Ingestion	Plume	Immersion	Ground Shine	(person-rem)		
No Action (Total Site)	6.1×10^{-6}	2.7×10^{-4} ^c	5.7×10^{-15}	0.0 ^c	2.8×10^{-4}	2.4×10^{-7}	1.4×10^{-7}	1.4×10^{-7}
Upgraded Storage Facility ^b	5.5×10^{-5}	5.4×10^{-7}	2.1×10^{-14}	4.3×10^{-11}	6.3×10^{-6}	5.4×10^{-9}	3.2×10^{-9}	3.2×10^{-9}
Upgraded Consolidated Storage Facility	5.2×10^{-5}	5.4×10^{-7}	2.0×10^{-14}	4.2×10^{-11}	5.2×10^{-5}	4.4×10^{-8}	2.7×10^{-8}	2.7×10^{-8}
Consolidated Storage Facility	5.2×10^{-5}	5.4×10^{-7}	2.1×10^{-14}	6.3×10^{-11}	5.3×10^{-5}	4.5×10^{-8}	2.7×10^{-8}	2.7×10^{-8}
Collocated Storage Facilities	5.6×10^{-3}	7.5×10^{-4}	3.4×10^{-11}	5.1×10^{-8}	6.4×10^{-3}	5.5×10^{-6}	3.2×10^{-6}	3.2×10^{-6}
Pit Disassembly/Conversion Facility	3.8×10^{-3}	4.1×10^{-5}	1.6×10^{-12}	3.4×10^{-9}	3.8×10^{-3}	3.3×10^{-6}	1.9×10^{-6}	1.9×10^{-6}
Plutonium Conversion Facility	2.8×10^{-3}	2.9×10^{-5}	1.1×10^{-12}	5.2×10^{-9}	2.8×10^{-3}	2.4×10^{-6}	1.4×10^{-6}	1.4×10^{-6}
MOX Fuel Fabrication Facility	6.3×10^{-7}	6.7×10^{-9}	2.4×10^{-16}	4.9×10^{-13}	6.3×10^{-7}	5.4×10^{-10}	3.1×10^{-10}	3.1×10^{-10}
Ceramic Immobilization Facility (Immobilized Disposition)	1.0×10^{-7}	9.3×10^{-9}	3.9×10^{-16}	6.0×10^{-13}	1.1×10^{-7}	9.4×10^{-11}	5.5×10^{-11}	5.5×10^{-11}
Deep Borehole Complex (Direct Disposition)	1.3×10^{-7}	1.4×10^{-8}	5.8×10^{-16}	8.6×10^{-13}	1.4×10^{-7}	1.2×10^{-10}	7.0×10^{-11}	7.0×10^{-11}
Deep Borehole Complex (With Immobilization)	2.5×10^{-4}	8.7×10^{-5}	4.7×10^{-9}	2.7×10^{-6}	3.4×10^{-4}	2.9×10^{-7}	1.7×10^{-7}	1.7×10^{-7}
Vitrification Facility	7.0×10^{-7}	1.7×10^{-5}	9.8×10^{-10}	5.3×10^{-7}	1.9×10^{-5}	1.6×10^{-8}	9.5×10^{-9}	9.5×10^{-9}
Ceramic Immobilization Facility (Ceramic Immobilization)	1.5×10^{-2}	8.4	0.15	1.8×10^{-2}	8.5	7.3×10^{-3}	4.3×10^{-3}	4.3×10^{-3}
Advanced Boiling Water Reactor	5.1×10^{-2}	8.1	1.8×10^{-2}	8.4×10^{-3}	8.2	7.0×10^{-3}	4.1×10^{-3}	4.1×10^{-3}
CE System 80+ Reactor [Text deleted.]								
AP600 Reactor	2.8×10^{-2}	7.3	5.8×10^{-2}	1.3×10^{-2}	7.4	6.3×10^{-3}	3.7×10^{-3}	3.7×10^{-3}
RESAR-90 Reactor	4.5×10^{-2}	$.8.8$	2.4×10^{-2}	1.1×10^{-2}	8.9	7.6×10^{-3}	4.4×10^{-3}	4.4×10^{-3}

^a Dose to the population within 80 km from natural background radiation in 2030 is equal to 116,900 person-rem.

^b For the three upgrade subalternatives including the Preferred Alternative, the dose to the MEI and the population within 80 km would decrease slightly from the No Action Alternative, although the differences are expected to be below detection limits. Therefore, the total site dose would decrease slightly but the change would be undetectable. The quantity of Pu pits at Pantex to be stored in upgraded facilities in Zone 12 would be slightly increased by the addition of RFETS pits (the Preferred Alternative) or by the addition of RFETS Pu and LANL Pu. The difference between these three subalternatives would be below detection limits. The AT-400A has both an inner container and an outer container that provides additional shielding material. The overall effect of moving Pantex and RFETS pits from Zone 4 to upgraded Zone 12 storage facilities would be lower potential releases of radioactive materials to the public, because the radiological impacts at Zone 4 would be reduced.

^c The committed effective dose equivalent for the storage facility is calculated to be 1.8×10^{-8} mrem based upon an analysis of measured dose. The dose shown here is for the Upgrade With RFETS Pu Pits Subalternative (Preferred Alternative). The dose for the Upgrade Without RFETS Pu or LANL Pu Subalternative would be slightly less and for the Upgrade With All or Some RFETS Pu and LANL Pu Subalternative would be slightly greater. The differences are not measurable above background.

Note: The dose shown here is for the Upgrade with RFETS Pu Pits Subalternative (Preferred Alternative). The dose for the Upgrade Without RFETS Pu or LANL Pu Subalternative would be slightly less and for the Upgrade With All or Some RFETS Pu and LANL Pu Subalternative would be slightly greater. The differences are not measurable above background.
Source: HNUS 1996a.

M.2.7.1 No Action

Atmospheric Releases and Resulting Impacts to the Public. For No Action, two of the areas have radioactive releases into the atmosphere from normal operation. Table M.2.7.1-1 presents the estimated annual atmospheric radioactive releases for No Action.

| **Table M.2.7.1-1. Annual Atmospheric Radioactive Releases From Normal Operation of No Action at Pantex Plant (curies)**

Isotope	Weapons Assembly/ Disassembly High Explosive	
	Bldg. 12-44 Cell 1	Burning Ground
Tritium (H-3)	0.16	0.14

Source: PX 1995a:1; PX DOE 1994a; PX DOE 1995d.

Tables M.2.7-3 and M.2.7-4 include the radiological impacts to the MEI and the offsite population within 80 km (50 mi), respectively. The MEI would receive an annual dose of 6.1×10^{-5} mrem. An estimated fatal cancer risk of 1.5×10^{-9} would result from 50 years of operation. The population within 80 km (50 mi) would receive a dose of 2.8×10^{-4} person-rem in 2030 (mid-life of operation). An estimated 7.0×10^{-6} fatal cancers could result from 50 years of operation.

Liquid Releases and Resulting Impacts to the Public. There are no radioactive liquid releases into the offsite environment associated with No Action. Therefore, there are no resulting impacts.

Worker Doses and Health Effects. Based on measured values during the time period from 1989 to 1992 (*Twenty-Second Annual Report Radiation Exposure for DOE and DOE Contractor Employees—1989*, DOE/EH-0286P) and subsequent yearly dose reports), the annual average dose to a badged worker at Pantex was calculated to be 15 mrem. It is projected that in 2005 and beyond, there would be 1,400 badged workers involved in No Action activities at Pantex (PX 1995a:1). The annual average dose to these workers was assumed to be 10 mrem; the annual total dose among all these workers would then equal 14 person-rem. From 50 years of operation, an estimated fatal cancer risk of 2.0×10^{-4} would result to the average worker and 0.28 fatal cancers could result among all workers.

M.2.7.2 Storage and Disposition

Radioactive Releases and Resulting Impacts to the Public. Total site radiological impacts during operation of storage or disposition facilities can be found by adding the impacts resulting from No Action facilities to the changes in impacts resulting from the storage or disposition facilities. For example, to determine the radiological impact for the addition of the AP600 reactor at Pantex, the No Action facilities doses have to be summed with the AP600 reactor doses. Estimated annual atmospheric radioactive releases for the different facilities are given in Section M.2.3. Tables M.2.7-3 and M.2.7-4 include the radiological impacts by alternative. There are no radioactive liquid releases into the offsite environment associated with any alternative action.

No change was reported in radioactive releases due to the upgrade of existing storage facilities for continued Pu storage at Pantex above those radioactive releases already included in No Action. Therefore, there are no changes in dose to the public from the upgrade of existing storage facilities at Pantex.

The annual doses associated with the different alternatives range from 0 to 1.5 mrem to the MEI and from 0 to 8.9 person-rem to the 80-km (50-mi) population in 2030. The associated health effects from annual operations are included in both tables.

Worker Doses and Health Effects. For the storage and disposition alternatives, the impacts from the No Action facilities need to be added to the changes in impacts from the storage or disposition facilities to determine the impacts from total site operations (refer to the worker discussion under No Action, above, and to Table M.2.3.2-1).